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ABSTRACT

The education of children who are gifted is examined with respect to their unique traits as a group, their learning styles, and the best methods for instruction. The focus is elementary level academic instruction and strategies that can be used by regular classroom teachers to challenge students who are gifted. Consideration is given to: definitions of giftedness; the importance of early identification of the child who is gifted; behavior patterns in children who are gifted; and 12 traits that might accompany giftedness in personal skills, interpersonal skills, and information processing skills. Educational approaches are discussed, including acceleration, special schools, pull-out programs, and clustering. Common learning style preferences of students who are gifted are discussed, along with a number of thinking and learning models, including Bloom's classification of thinking skills, a mastery learning model, and a critical/creative thinking model. (Contains 15 references.) (SW)

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The gifted child:
Personality traits, learning styles and useful teaching strategies

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The purpose of this paper is to look at the education of gifted children with respect to their unique traits as a group, their learning styles, and the best methods for teaching them. It also looks briefly at the federal definition of "gifted" and the different ways in which schools and school districts generally provide for this special group of students.

The goal of this paper is twofold: first, to examine whether or not there are certain characteristics and personality traits which might contribute to the gifted learning "better" than the average child, and secondly, to look at some of the teaching strategies currently used with the gifted student. With respect to the latter, I found that there are indeed many such strategies. For the purposes of this paper, I focus on those strategies which seem most appropriate for the elementary school level, those which are more in keeping with academic (as opposed to moral) instruction, and those which are not overly theoretical or difficult to manage or train teachers to use. Hence, the stategies mentioned might be adapted by a regular classroom teacher striving to challenge the gifted student. Hopefully, this paper will provide those interested with a basis for dealing with the gifted student in the classroom, as well as act as a springboard for studying this area more intensively.

The gifted child:

Personality traits, learning styles and successful teaching strategies

In 1972 Sidney Marland, who was then the U.S. Commissioner of Education, prepared a report for Congress on the education of the gifted and talented. This report helped to establish the federal definition of the term "gifted" and has had a profound influence on the field ever since. Marland's definition reads as follows:

> Gifted and talented children are those, identified by professional and qualified persons, who by virtue of outstanding abilities are capable of high performance. These are children who require differentiated educational programs and/or services beyond those normally provided by the regular school program in order to realize their contributions to self and society.
>
> Children capable of high performance include those with demonstrated achievement or potential in the following categories, singly or in combination:
>
> 1. General intellectual ability (with IQ scores in the top 3-5%)
> 2. Specific academic ability
> 3. Creative and productive thinking
> 4. Leadership ability
> 5. Visual and performing arts
> 6. Psychomotor ability (Smutny & Bloksam,1990, p.1)

It is important to recognize that this federal definition makes provisions for those with

above-average potential, as well as those with demonstrated ability.

Marland's 1972 report said that his studies showed that there was a definite need for identifying the gifted and providing them with an approporiate and challenging education. He noted that gifted children who are not challenged run the risk of becoming underachievers. The gifted child who is bored at school often develops the characteristics of non-gifted or even slow learners which is usually enough to keep the child from getting the special help that he/she needs.

Several years after Marland's initial report, *The 1978 Gifted and Talented Children's Education Act* was passed. This required schools to identify and provide activites for children with "demonstrated" or "potential" abilities in the first five areas mentioned in the 1972 definition. (It should be noted that the 1978 Act dropped the sixth category, psychomotor ability, from its list of gifted categories.) By 1985, at least half of the states had adopted Marland's definition. (Alvino, 1985) Education for the gifted was being looked at with renewed interest.

One of the major stumbling blocks to providing educational programs for the gifted has always been a sizable group of people who feel that the gifted are already blessed with above-average intelligence, therefore, they should be able to succeed without any extra help. This is perhaps the greatest misconception about the gifted child. Gifted children are not all little wiz kids ready to tackle the world and its problems. Quite the contrary, there is every bit as much variance, intellectually and personally, within this group of children we label as gifted as there is within any other group of exceptional children or within the general population itself. Following a recent study on information processing style and reading ability in gifted students, Norma Lu Hafenstein concluded that "there is as much potential variation in comparing

exceptional gifted children and gifted children as in comparing an average child with a child well below the norm" (1990, p.16). There seems to be a consensus of opinion that, perhaps even more than other exceptionalities, these children need the proper nurturance and guidance if they are to reach their full potential (Alvino, 1985). Following a long-term study of gifted and talented individuals, Benjamin Bloom writes that "the study has provided strong evidence that no matter what the initial characteristics (or gifts) of the individual(s), unless there is a long and intensive process of encouragement, nurturance, education, and training, the individuals will not attain extreme levels of capability..." (1985, p.3). Bloom's study raises some serious questions for those who suggest that the gifted need no special attention because of the innate potential which they possess.

Identification of the gifted child at a fairly early age is important. Gifted children need appropriate stimulation if they are to succeed. Gifted children who go unidentified run the risk of becoming underachievers and developing into behavioral problems for the classroom teacher. Research has shown that once this pattern of underachieving has been established it feeds upon itself unless some form of intervention occurs. By the time a child reaches fourth grade these patterns can be very hard to break (Brown-Mizuno, 1992).

There are a number of ways to identify the gifted child. IQ and achievement tests are probably the most utilized and relied upon means of identification--at least by schools. Used alone, however, it is doubtful that these are accurate measures of giftedness. The most reliable standardized test seems to be the SAT (Feldhusen, 1989). This presents obvious problems when looking at the issue of early identification, since the SAT is typically administered in high school and geared to an older student

population. The trend at present is to use a more multidimensional-criterion referenced approach. "The research on intelligence and the diverse definitions of giftedness requires that we broaden the selection criteria for gifted programs, using a multi-dimensional approach that includes parent, teacher, and self-nomination, as well as intelligence, achievement, and creativity tests..." (Smutny & Blocksam, 1990, p.8).

Often times those who first, and best, identify a child as gifted are the parents. Giftedness can be evident at a very young age (i.e. under two), or in the preschool years. Often times, however, the child shows no signs of possessing truly exceptional ability or potential until he or she reaches school-age. In these cases it is often the classroom teacher who will make the "discovery". There are many traits which can, and often do, accompany giftedness. There are many more checklists of these traits for use by parents, teachers, and school personnel. Such lists are only guides, but they can be useful in spotting the gifted child. Most lists look something like this:

A gifted individual...

1. is curious.
2. is persistant in pursuit of interests and questions.
3. is perceptive of the environment.
4. is critical of self and others.
5. has a highly developed sense of humor.
6. is sensitive to injustices on personal and world-wide levels.
7. is a leader in various areas.
8. is not willing to accept superficial statements, responses, or evaluations.

9. understands general principles easily.

10. often responds to the environment through media and means other than print and writing.

11. sees relationships among seemingly diverse ideas.

12. generates many ideas for a specific stimulus.

(Tuttle & Sousa, 1988, p.15)

All of the criteria on this list can be grouped into three larger categories--personal skills (numbers 1-3), interpersonal skills (numbers 4-7), and information processing skills (numbers 8-12) (Tuttle & Sousa,1988). When teachers and/or parents regularly see these types of skills or behavior in a child it may signify giftedness and open the door for further evaluation of the child's skills and potential.

Some other traits, which are relative to, but not specifically enumerated on, the preceeding list are: precocity, associative and divergent thought processes, persistance, a critical perspective, and different perceptions of time and space than is the norm. Often these traits--highly prized by educators--can cause problems in the classroom. For example, a persistant gifted child may interrupt the teacher repeatedly in order to have his or her questions resolved. This disrupts the flow of instruction for the other students, annoys the teacher, and may be totally irrelevant to the lesson at hand. "Teachers should learn to observe students individually with the expectation that perhaps their behavior might be indicative of potential superior ability"(Tuttle, p.20).

Obviously, such lists of attributes cannot be relied upon too heavily. The traits listed are very broad generalizations--few people, if any, will exhibit all of these tendencies, many will exhibit some which are not on any given list. Furthermore, such traits will only be evident if the individual's environment allows for it.

Despite the age-old picture of the reclusive, bespectacled bookworm which many people think of as synonomous with high intellect, the gifted are "almost invariably more popular and more socially acceptable than children at other levels of intellectual ability"(Tuttle, 1988, p.14). They are, in general, larger, stronger, and in better physical condition than the average population. In short, it could be said that the gifted generally possess the ability and potential to succeed on many levels; hence the straight-A-star-quarterback-voted-most-likely-to-succeed-president-of-the-high- school-senior-class.

On the other hand, partly as a result of many of their unique traits, "gifted students, in general,....are subject to a high probability of emotional stress and social conflict" (Brown-Mizuno, 1990, p.201). Some of the problem traits which seem to be seen frequently in gifted individuals are perfectionism, feelings of inadequacy, unrealistic goals, intolerance, super-sensitivity, and the need for constant adult reinforcement. In a 1979 study, Kirk and Gallagher note that "despite high intelligence, gifted students are often insecure with low self confidence and perseverance compared to other students"(Brown-Mizuno, 1990, p.200).

Susan Richert, Director of the Gifted Education Information and Resource Center, recognizes four major behavior patterns in gifted children. Because gifted children are often astute enough to recognize their differences and the fact that they require more and are expected to produce more, intellectually and personally, than those around them, they frequently develop their own survival system which enables them to cope with externally imposed values, beliefs, etc. Richert has noted four common patterns of behavior--conformity, withdrawal, rebellion, and independence. (Alvino, 1985) Each fosters--or hinders-- the individual's development to some degree with respect to

things such as ability, productivity, creativity, values, self-concept, social relations, and sensitivity.

The individual who chooses to conform actually chooses the path of least resistance. "The level of achievement of some very successful gifted children is often based on what others want in order for their acceptance to be gained" (Alvino, 1985, p.169). These individuals are often highly successful, but they set up a pattern of emotional dependence and severely limit their creativity. This is a pattern often perpetuated by the child's parents, i.e. parents encourage the child to conform to academic standards because it is the surest route to success. As adults, conformers tend to value themselves according to how many status symbols they acquire (especially males) or by trying to please those around them (especially females).

Other individuals will accept external standards, but feel unable to meet those standards. Rather than risk defeat or failure they simply withdraw. "By consistently delivering less of themselves--both personally and academically--these children lower the expectations to where they can deal with them, either by meeting them or at least not being burdened by them"(Alvino, 1985, p.171). Girls are far more likely to withdraw in this fashion, as their successes tend to threaten their personal relationships. Children who choose withdrawal often become so proficient at underachievement that they perform like average children.

Children who conform or withdraw, while not necessarily helping themselves, are usually not a problem for the teacher. Those who withdraw might be labeled as lazy or difficult to motivate. The conformer, and sometimes the withdrawer, are often excellent students, earning the praise and admiration of their teacher. This is not always the case with all gifted children. One of the most difficult types for a teacher to

deal with is the rebellious student. Though one generally does not think of these students as being exceptional--or at least not gifted--this is not an uncommon pattern of behavior for a gifted individual.

Rebellion is most frequently seen in children who have very divergent thought patterns, which usually signifies high creativity. For some, it is a pattern which only emerges in highly restrictive environments. For others, it only makes an appearance during adolescence. And for still others it may become a way of life. The rebellious child will loudly voice his/her complaints about almost any percieved injustice. These are not, however, declarations of independence. Rather, they signify the child's dependence on acceptance by those around him. If the child's worst behavior--anger, impatience, complaining--is accepted, then that truly must mean the child is loved. The major drawback with this rebellious form of behavior is obvious. If allowed to continue it may become so deeply ingrained that it becomes the child's only way of coping, resulting in emotional stress and serious problems regarding interpersonal relations.

The final and most constructive of Richert's behavior patterns is that of independence. Individuals who are independent do not rely on external approval to validate their achievements, successes, or self-esteem. The behavior of the independent person may, on the surface, look like the behavior of any of the other personality/behavior patterns. The critical difference lies in the motivation of the independent. One of the key indicators of such a person is the ability to make choices based on personal commitment and to accept the consequences of those choices. The independent gifted child needs to be able to take two kinds of risks in order to fully develop his/her emotions and creativity: (1) the child must accept that he/she will

sometimes be wrong, and (2) the child must be able to deal with the disapproval of others. This behavior pattern of independence is of a self-actualizing nature and requires a certain amount of emotional maturity on the individual's part. It is to this end that teachers should be trying to guide the gifted student.

It is certain that gifted children share certain traits which help to identify them and are indicative of a superior level of potential. The exact reason for this greater potential and/or ability is not clear. Many interesting studies have been done on the nature and role of intelligence, ability, etc. There are no definitive answers as yet and any further discussion is beyond the scope of this paper. What is clear is that "the achievement of one's potential intelligence is dependent both on interaction between the individual and the environment and on interaction within the individual"(Tuttle & Sousa, 1988, p.12). Therefore, it is safe to say that the schools can and do play a major role in the gifted individual's intellectual development.

Schools and school districts have a variety of ways in which to teach the gifted. In addition to basic educational philosophies and methodologies, schools must also look at how, when, and where they teach their gifted students. In many ways the options resemble those for teaching children of other exceptionalities. It must be remembered, though, that when dealing with the gifted there is no provision which specifies a "least restrictive environment" and there are no intellectual limitations. This allows schools more flexibility when choosing, or not choosing, a particular model to use.

Historically, students with superior intellectual ability have been moved to higher grades. This practice is referred to as acceleration. Opponents of acceleration say that it is not good to rush the child through the curriculum or to have the child skip over large blocks of the curriculum. They also are concerned that the child might suffer

socially when placed a grade or two ahead. In fact, recent studies are showing acceleration in a new light. "Together experimental and correlational studies provide strong evidence that acceleration leads to greater student achievement in school and in life for talented students"(Feldhusen,1989,197).

Another means to educating the gifted is the special school or class. This can be a separate structure or a school-within-a-school. Such schools offer a wealth of possibilities since their entire focus is on the gifted. All of the resources--teachers, equipment, materials--are all in one place. Special schools and classes, though the most advantageous, are much more difficult and expensive to set up and manage than the other models.

Seventy per-cent of all school districts with gifted programs in place have some type of pull-out program (Smutny & Blocksam, 1990). In these programs, the child is "pulled out" of the regular classroom in order to recieve specialized instruction. This occurs on a regular basis, i.e. daily or weekly. These are fairly easy to implement and relatively inexpensive. One of the advantages of such programs is that gifted children can interact with regular classmates. The special teacher is responsible for most of the gifted curricular material, such as focusing on critical thinking, etc. which frees the regular teacher to focus on basics within the regular classroom. At the same time, it can be frustrating for the gifted students, the teacher, and the regular classmates to have the gifted students continually disrupting class time with their comings and goings. "Probably the fundamental defect of the pull-out model is that it offers a part-time solution to a full-time problem"(Cox, Daniel, Brown, cited in Smutny & Blocksam, 1990, p. 24).

Clustering is a means of teaching the gifted students within the regular classroom. In the cluster model gifted students work together in small groups within a heterogeneous class. This is an easy model to implement and the added cost is kept to a minimum. It is the regular classroom teacher who is responsible for the activities of the gifted group. Therefore, the success of this model depends largely on the ability of the teacher as a manager of time and resources. It works best when instruction can be individualized, but in fact the biggest drawback to this type of model is that the teacher usually does not have enough time to give the gifted cluster much beyond the regular instruction.

A combination pull-out-cluster program may provide the answer for those schools which cannot afford special schools or classes. By combining the two, some of the disadvantages of each can be overcome.

Regardless of which model a school district uses there is no guarantee that it will produce a good program. A successful gifted education program will combine a well-structured learning environment, whatever and wherever that may be, with a well-designed curriculum, and trained teachers and staff. Such programs should consider the capabilities of the gifted as a group, as well as the learning styles and preferences of individual students.

Learning styles is the term used to define "a biologically and developmentally imposed set of personal characteristics that make the same teaching method effective for some and ineffective for others" (Dunn, Beaudry, & Klavas, 1989, , p. 127). For the past decade learning styles have been looked at and studied as a possible means for explaining and enhancing learning in all students. While this paper is not intended to be a discussion of the validity of learning styles research, it is important to

realize that, due to general characteristics, the gifted, as a group, exhibit preferences or tendencies which enable them to learn better in certain environments or when materials are presented in a certain way.

Everyone has a unique learning style; the gifted have distinctly different learning styles than do those of average intellectual ability. Recent research has shown that gifted children grouped by learning style showed more cognitive growth in reading and mathematics than those grouped by cognitive achievement. (Cage, 1982) Similar research has also shown that there is a relationship between a teacher's learning style and that of a student; when teacher's and student's learning styles are matched the result is higher GPAs (Cage,1982). It is important for teachers to keep in mind the learning styles of the individual or group with which they are working and to teach to those styles in order to maximize learning. Some of the learning style preferences Cage highlights in his research are as follows:

1. Gifted students are at their "intellectual best" just before lunch.
2. Giving homework to gifted students may be counter-productive.
3. Gifted students are persistant in their studies--more so in reading and language arts than in math.
4. Gifted students prefer warm rooms to cool rooms.
5. Gifted students prefer to chew while studying.
6. Gifted students don't necessarily like to study with peers.
7. Students with high achievement in reading didn't want mobility.
8. Students who excelled in math preferred not to learn by kinesthetic/visual means.
9. Good math students prefer background noise while studying.(Cage,1992)

Cage's research has found that "certain learning style variables, taken in combination, are significantly related to higher achievement among gifted students" (Cage, 1982, p.11). Therefore, when planning the curriculum for gifted students, educators need to be cognizant of their preferences as a group and structure the program around the kinds of learning experiences which are most advantageous for gifted students. Many of these types of learning strategies are things which the regular classroom teacher attempts to do for all students, but which might be expected (at least in theory) to be more successfully accomplished with the gifted. Teaching thinking skills, both creative and critical; individualizing instruction whenever possible; encouraging students to be active, rather than passive, learners and thinkers; teaching the use of metacognitive skills; and using thematic units to stress the relationship between subject matters are examples of the types of techniques which all teachers use, but which are especially valuable when working with the gifted.

Simply moving gifted children to a different setting or removing them from the mainstream is not enough to ensure that they will learn at their optimum rate. A well-planned, specially designed curriculum is necessary. There are several curricular models, i.e. teaching/learning models, and teaching strategies which have been developed over the last two decades or so. Many of these, though appropriate for the regular classroom, need only to be adapted to the gifted curriculum (van Tassel-Baska,1986).

One such widely used concept is *Bloom's Taxonomy*. Bloom's Taxonomy is not a teaching technique in and of itself; however, it is essential for teachers planning the goals and objectives of a gifted program. Bloom's Taxonomy, developed by Benjamin

Bloom, is a heirarchical classification of thinking levels. They are (in order from the lowest level to the highest level): knowledge, comprehension, application, analysis, synthesis, and evaluation. By moving through the various levels the teacher takes the student through a sequenced process from simpler to more complex cognitive tasks. One can use the analogy of a child learning to play the piano to demonstrate the application of the taxonomy. Initially, the child must be introduced to the instrument and the process of reading music (knowledge and comprehension); next, the child begins to play songs and, as he practices, learns the nuances inherent to playing music (application and analysis); finally, the child is so accomplished that he composes his own music and is able to look at it critically and further refine it (synthesis and evaluation). Bloom's taxonomy, then, supports the idea that thought processes develop from the simple to the complex. When dealing with gifted students the teacher should, theoretically, be able to move through the lower levels quite rapidly; so therefore, he/she should set objectives which focus the student on the higher levels of thought/activity. Bloom's Taxonomy is particularly useful for teachers of the gifted and invaluable when working within the framework of other teaching models.

One of the more familiar models at all levels is the Content Mastery model. With this model the teacher emphasizes the mastering of basic skills and concepts. Gifted students are moved through the content areas faster than the average student, so content acceleration could be said to be characteristic of this model. It has been found that "thinking is strongly influenced by experience with new information" (Hollingsworth, 1987, p.5), so it makes sense to lay the groundwork by providing children with the most information, i.e. content, possible. The gifted are not only capable of learning

more content than is the norm, they are also capable of learning the more complex and abstract concepts within those content areas (Maker, 1982).

Following a study on the development of talented and gifted behaviors done about fifteen years ago, Benjamin Bloom espoused the merits of the Mastery Learning Model (1985). In this teaching model the basic premise is that a student must master a given subject matter before going on. The material is taught and worked with, the students are evaluated, and those who have not mastered the material continue to work on it before progressing. This is currently a hotly debated method with regards to its application in the regular, public school classroom setting. The notion that students continue to study a concept indefinitely, until mastery has occurred, is not one which fits into a structured, graded environment very well. However, in a special education setting--which, after all, the gifted classroom is--such a teaching model may be more viable.

Bloom also found, as a result of this study (1985), that when students were tutored one-on-one they progressed much further and much faster. This may lend added credence to those who are currently touting that programs for the gifted could be made more efficient and more effective if they all used IEPs (Individualized Education Plans) for their students (Hafenstein, 1990). This would ensure individualization of instruction.

There is presently much emphasis on the notion that we must teach children how to think and reason. E. Paul Torrance, one of the leaders in the field of gifted education, saw the need to make this a priority in our schools. The Critical/Creative Thinking Model stems from this need and is designed to develop thinking skills. Gifted children often exhibit special capabilities in this area, which makes it especially exciting and

challenging to work within the framework of such a model. Torrance's research suggests that creativity and critical thinking are closely linked (Smutny& Blocksaam, 1990). This makes it necessary to focus on both types of thinking simultaneously, since gifted students learn these processes concurrently.

Familiarity with Bloom's Taxonomy becomes essential with this teaching model. Critical thinking is the upper half of the taxonomy--analysis, synthesis, and evaluation. When thinking critically the process tends to be convergent, i.e. the objective is to find the one solution to the problem. Creative thinking, on the other hand, is divergent. It leads to a variety of answers or approaches. Creative thinking is made up of any, or all, of four attributes: originality (involves applying new ideas to old concepts), fluency (capacity to generate new ideas), flexibility (adaptability), and elaboration (expanding on ideas to produce a truly unique product or solution). Gifted students need the opportunity to work both critically and creatively.

Several very practical teaching/ learning strategies have arisen due to the emphasis on thinking. One of these is Sidney Parnes' *Creative Problem Solving Approach* which is widely used in gifted programs around the country. This approach had its beginnings in the business world (Maker, 1982), and has been transferred to education to enhance overall creative behavior and to provide a systematic means of working from complete chaos to an effective solution. The individual using this approach goes through a five-step process: fact-finding, problem-finding, idea-finding, solution finding, and acceptance-finding. This approach provides a great deal of data regarding its effectiveness and it is very versatile; however, it is not comprehensive and should only be used in combination with other teaching strategies (Maker, 1982).

Another strategy is Frank Williams' *Teaching Strategies for Thinking and Feeling*. This is a simple, practical approach which comes in kit form, complete with an idea book for the teacher. This approach was not specifically designed for gifted students; however, it has become one of the most commonly used strategies of its kind in gifted programs (Maker, 1982). Under this method the teacher is supposed to use a series of eighteen strategies designed to further the processes of curiousity, risk-taking, complex thought, and imagination while working through the traditional subject matter.

Calvin Taylor designed another strategy which he has named the *Multiple Talent Approach*. He works from the premise that most people have far more talent than they use. If this talent is recognized and nurtured then more people will be able to excell in at least one area. This would have many benefits for both the individual and society in general. Taylor's teaching strategies result in the student being an active participant in such activities as planning, forecasting, decision-making, communications, and human relations. Based on his approach, as many as 30%-50% of all students might be considered gifted (Smutny& Blocksam, 1990, p.15). For this reason "...it may not be appropriate for use in categorically funded projects for the gifted because of its philosophy that most children are talented in some way" (Maker, 1982, p.119).

The Process-Product Model is another approach to teaching which can be adapted for specific use with gifted students. In this model, the teacher acts more as a "facilitator of learning" than as a "dispenser of knowledge". This is a product-based model rather than a proficiency-based model. This means that, rather than focusing on the content, the student is more focused on the learning process and the resulting product. Investigatory skills are stressed and the subjects studied are often those which

most interest the student. Specific subjects are studied in-depth, rather than moving through a given body of material rapidly, as in the Content-Mastery model.

The gifted individual frequently possesses the unique ability to see relationships between seemingly diverse subject matter. This makes it particularly important to work on enhancing the inter-connectedness of the individual content areas within the gifted curriculum. "Properly designed interdisciplinary units can lessen the fragmentation that too often results from the attempts at providing enrichment for the gifted" (Jacobs & Borland, 1986, p. 159). It is not an easy task for a teacher to implement this model. The teacher must be well organized, have clearly developed objectives, and an equal concern for both content and process.

A good inter-disciplinary curriculum for the gifted should involve both a strong disciplinary base and a strong inter-disciplinary orientation. Such a program also needs to emphasize the development of cognitive processes. Before beginning inter-disciplinary studies it is imperative that the students have a solid background in the individual disciplines, since "higher level thinking skills brought to bear upon trivial content produce trivial results" (Jacobs & Borland, 1986, p.159).

A good inter-disciplinary model can and should involve the gifted student, as well as the teacher, in its development. Once the students are thoroughly familiar with the separate disciplines they, along with the teacher, can begin work on the inter-disciplinary unit. Developing this unit involves selecting the topic, brainstorming to get ideas, formulating questions, and finally, designing and implementing the activities. Completion of the unit often leads students to the next logical step--an independent study project.

Self-directed learning is a concept which is currently enjoying considerable popularity. This is a way of teaching which is highly individualized, and seeks to move the emphasis away from teacher-directed instruction to student-directed instruction. It is highly effective for use with the gifted. Recent research has shown that changes toward self-directed learning result in more positive attitudes towards learning, classmates, subject matter, and school in general. (Betts & Neihart, 1986) A more positive self-concept has also been associated with this model. Self-directed learning can, and does, work to turn students into life-long learners.

There are several self-directed learning models. They all agree that gifted students are not born with the skills to be self-directed learners; they must be taught these skills. All agree, too, that it is important to assess and respect the individual child's interests and learning styles. A variety of instructional approaches is recommended--such as small group, individual, large group, pairs--and modifying the learning environment is called for as well. (Betts & Neihart, 1986)

Donald Treffinger's self-directed learning model relies on the sequential development of skills within the student for managing his/her own learning. It builds on the child's own strength's, increases his/her involvment in learning, and increases motivation. He has devised four stages which indicate movement from teacher-directed learning towards student-directed learning. At the first stage the teacher creates options from which the student must choose. At the second and third stages the student is gradually more involved with creating the options, and by the time the last stage is reached the student is in control of choosing and creating the options. "It is a developmental, practical approach that builds upon some of the more salient (and often troublesome) characteristics of gifted children: their stubborness when told what to do,

their curiosity about a wide range of topics, their constant questions, their nonconforming nature, and their tendency to direct the activities in which they are engaged" (Maker, 1982, p.120).

Another very popular self-directed model is *Renzulli's Enrichment Triad*. This is a model which was designed specifically for the gifted. It "provides for moving the student through awareness, the learning process, and the development of a product using three different, but interrelated, types of learning activities" (Maker, 1982, p.116).

Students must have three kinds of characteristics to benefit from *Renzulli's Enrichment Triad*. They must possess above-average intelligence, above-average creativity, and task commitment, i.e. motivation. The model, itself, provides for three types of activities which students can engage in. Type 1 activities are referred to as general exploratory experiences. Some examples are guest speakers and field trips. Type 2 activities are group training activities; this refers to learning activities done in groups--much like regular class work, only more complex. Both Type 1 and Type 2 activities can easily be used for all learners. Type 3 activities call for individual and small group investigation of real problems. These are in-depth studies, done independently or in collaboration with one or more fellow students; the topic of investigation is always chosen by the student(s) involved. It is these Type 3 activities which are uniquely important for the gifted.

There are many teaching/learning models which can be used for teaching the gifted. All of them vary in their purposes, as well as in their philosophy, content, process, product, and environment. All have distinct strengths and weaknesses. No one model is best in all circumstances. The models can, and should, be combined in such a way

that they compliment one another and work to minimize each other's shortcomings. June Maker (1982) recommends starting from some philosophical base when planning a gifted curriculum. In this way, says Maker, there is less of a chance that the final curriculum will be fragmented.

In conclusion, the many and varied options available for teaching the gifted--various settings, teaching/learning models, etc.--leave little room for excuses when it comes to implementing gifted education programs. This group of exceptional students needs accelerated, challenging instruction. Providing such instuction will not adversely affect students in the regular classroom, nor will it adversely affect the other special education students. In fact, when one considers the potential for achievement which the gifted possess, the only adverse affect might be caused by ignoring their exceptionality. In the words of Mr. Feldhusen (1989, p. 198): "If we fail to meet the needs of gifted students, we are harming not only those children, but all of society, which benefits from their contributions."

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